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To: Mel Parsons
From: Biological Assessment Team
Document Title/Description: Brief Synopsis of Robbins AFB Zone One Study, Table of Results of Laboratory, Microtox, and Field Tests from wetland samples from Robbins AFB, and Description of Sample Sites.

Memo: Attached are the results of the Robbins AFB Zone One wetlands evaluation and characterization study. We have retained custody of laboratory and field notes and will provide a more detailed and comprehensive write up of these results if needed.

BRIEF SYNOPSISROBBINS AFB ZONE ONE STUDY

Members of USEPA, Environmental Services Division, Ecological Support Branch made an onsite characterization and evaluation of the wetlands surrounding Zone 1 site RAFB. Sixty sampling points were established through the wetlands surrounding Zone 1 (Fig. 1). Field measurements made at each sampling point included pH, temperature, D.O., Conductivity, Oxidation-Reduction Potential, and depth. Laboratory measurements made on samples included temperature, pH, Alkalinity, Hardness, Ammonia, and Chloride. Toxicity tests were performed using Microtox^R on all laboratory samples. Unionized ammonia was calculated. Results of these measurements by transect and sample station are given in Table 1.

The data collected during this study supports the following conclusions:

- * The 2.1 million gallon/day discharge from the Sewage Treatment Plant has an adverse influence on the wetlands as confirmed by toxicity tests, NH₃, chloride, and conductivity measurements.
- * The wetlands are doing their job as a natural filter. Even when "high" readings were made in the surface waters near the landfill, by the time these surface waters had "migrated" a couple of hundred feet, the measurements made on the surface waters were no higher than background. In no case could any influence of the landfill be noted by the parameters measured more than 100 yards from the landfill.
- * Local "hotspots" right on the edge of the landfill could be detected on transects 2A, 3,4,10-1 and LS-1.
- * The "hydraulic head" keeping the "feet" of the landfill wet is influenced by surface water dams constructed by beaver on the drainage channel from the treatment plant.
- * Overall the wetlands are in pretty good shape...there has been no visible damage done to them by the landfill.

DESCRIPTION OF SAMPLE SITES

Transect 1 (1 station) - due north from wells numbered LF4-44 and 45

shrub scrub at 0 feet, then semi-open canopy of Tulip Poplar (Liriodendron tulipifera), Sweet Gum (Liquidambar styraciflua), and Red Maple (Acer rubra), all second growth

at 40' - scrub shrub and blackberries

at 60' - open forest with Red Maple, willow (Salix sp.), and blackberries

at 140' (station 1) - one water sample and hydrolab readings taken at drainage channel from sewage treatment plant. Signs of beaver activity, two species of water snake (Natrix sp.), and an adult green frog seen. Channel approx 8 ft. wide, 6-8 in. deep, and flow approx. 6 cfs W -> E.

continuing north from channel - Typha cattails, Ash, Red Maple, quickly changing to Willow Oak (Quercus phellos), and Wild Cherry (Prunus sp.) up the bank. Near stream ground cover Japanese Honeysuckle and Poison Ivy.

from 185' to end of transect ^(515')~~(330')~~ sludge pond covered by old field dominated by grasses, blackberries and small Wild Cherry trees.

Transect 2 (4 stations) - due north of wells numbered LF4-24, 25, and 43.

initially bottomland hardwoods dominated by Tulip Poplar, Red Maple, some Hornbeam (Carpinus caroliniana), and Red Bay (Persea borbonia).

at 300' (station 1) - shrub scrub with young Red Maple, Ash (Fraxinus sp.), Magnolia sp., Ligustrum sp., and blackberry briars. Ground cover Japanese Honeysuckle. Water sample and hydrolab readings taken in water-filled hole in the "peat."

at 368' (station 2) - second water sample and hydrolab readings taken in small seep 2 ft. wide and 6-8 in. deep with less than 1 CFS flow W -> E.

at 416' (station 3) - at beaver dam on channel (same channel as in transect 1) water sample and hydrolab readings taken 3 ft. above dam in water 8 in. deep.

at 672' (station 4) - last water sample and hydrolab readings taken in cattail marsh at the 30 ft. due south of the perimeter road. Water depth 5 in.

Transect 2A (4 stations) - due north of wells numbered LF4-26 and 27.

open, young swamp forest dominated by willows 6-8 in dbh, some magnolias, maple, Tulip Poplar, and privet. Water 2-6 in. except at base of trees. Understory marshy with broadleaf emergent vegetation (Lizard tail-Saururus saururus).

at 150' (station 1) - water sample and hydrolab readings taken

at 300' (station 2) - vegetation and hydrology changing slightly to a canopy dominated by Red Maple and an under story consisting of the emergent broadleaf vegetation widely scattered (25-50 yds) with clumps of a yellow compositae, small Swamp Chestnut Oaks (Quercus michauxii), and cattails. A water sample and hydrolab readings taken in water 3-4 in. deep.

at 580' (station 3) - at channel (same as in transects 1 and 2) water sample and hydrolab readings taken. South side of channel is open swampy forest dominated by willow and ash. A lone ^{cottonwood} true poplar, ~~not~~ Populus heterophylla ^{sp.} (not Tulip Poplar) was seen at this station. North of the channel the forest gives way to dry open marsh ^{marsh} dominated by cattails and sporadic willow trees for approximately 300 ft. the opens into a pond.

at 720' (station 4) - water sample and hydrolab readings were taken in open water 9 in deep and approximately 140 ft. due south of the perimeter road. Mosquito fish (Gambusia) present.

Transect 3 (9 stations) - due north of well numbered LF4-10

at 50' (station 1) - bottomland forest composed of willow, willow oak, and maple with a ground cover dominated by lizard's tail (Saururus) and Green Arum (Peltandra virginica) Water sample and hydrolab readings taken. Water depth 3 in.

at 200' (station 2) - vegetation same. Water sample and hydrolab readings taken. Water depth 2 in.

at 400' (station 3) - vegetation similar to previous station but Tulip Poplar now present. Water and hydrolab readings taken. Water depth 3 in.

at 600' (station 4) - vegetation same as previous station. Water and hydrolab readings taken. Water depth 7 in.

at 800' (station 5) - bottomland forest dominated by Tulip Poplar and Red Maple with scattered Sweet Bay (Magnolia virginiana), Hornbeam (Carpinus caroliniana), and lizard's tail. Water and hydrolab readings taken. Water

depth 2 in.

(station P1) - at edge of channel (same channel as in transects 1,2,and 2A). water 2 ft. deep. Water sample and hydrolab readings taken. Observed three water moccasins and one large snapping turtle.

(station P2) - in open pond (see map). Water depth 6 in. Water sample and hydrolab readings taken.

(station P3) - in open pond 150 ft. due south of perimeter road (see map). Thick mat of duckweed (Lemna). Water depth 6 in. Water sample and hydrolab readings taken.

Transect 3A (1 station) - water sample and hydrolab readings taken in middle of open pond (see map) at water depth of 6 in.

Transect 4 (9 stations) - begins at well numbered LF4-10 as in transect 3 and extends 22.5 degrees NNE. (see map).

(station 1) - same as station 1 for Transect 3.

at 200' (station 2) - bottomland forest dominated by Tulip Poplar, Red Maple, and Sweet Bay. Water sample and hydrolab readings taken. Water depth 1 in.

at 400' (station 3) - canopy of Tupelo (Nyssa sp.); understory of Swamp Chestnut. Red Bay, Sweet Bay, Willow Oak, and Virginia Willow (Itea virginica). Water sample and hydrolab readings taken. Water depth 1 in.

at 600' (station 4) - crossed wellhead numbered WP-10 between station 3 and 4. Forest more open dominated by Red Bay, Tupelo, and Sweet Bay with an understory shrub layer of Hydrocotyle, Peltandra, and Itea virginica. Water sample and hydrolab readings taken. Water depth 2 in.

at 800' (station 5) - open canopy. Vegetation dominated by Red Maple, Hornbeam (Carpinus), and Itea virginica. Water sample and hydrolab readings taken. Water depth 2".

at 939' (station 6) - at channel (same channel as in transects 1,2,2A, and 3) in low area on south side of berm. Water sample and hydrolab readings taken. Water depth 2".

(station P1) - in open channel 10 ft. from station 6. Water sample and hydrolab readings taken. Water depth 1 ft.

(station P2) - in open pond (see map). Water and hydrolab readings taken.

Water depth 8 in.

(station P3) - across service road; in middle of turtle pond (see map). Water sample and hydrolab readings taken. Water depth 2 ft.

Transect 4A about 4 ft. from entrance to culvert exiting turtle pond (see map). Water sample and hydrolab readings taken at a depth of 8 in. Hydrolab readings (only) also taken at a depth of 2 ft.

Transect 5 (5 stations) - running 45 degrees northeast from wells numbered LF4-10, 11, 12, and 29.

0'(station 1) - initially bottomland forest dominated by Tulip Poplar, Black Willow (Salix nigra), Swamp Chestnut Oak and Red Maple up to 50' tall to 1' dbh. Dense understory of Sweet Bay, Willow Oak, Hornbeam (Ironwood), Virginia Willow, Lyonia, lots of holly (Ilex laurifolia) and Catbriar (Smilax sp.). Ground cover predominantly Virginia Creeper, Sensitive Fern, Royal Fern, Cinnamon Fern, Sagittaria lancifolia, Saururus saururus and Smilax sp. Water sample and hydrolab readings taken. Water depth 3 in.

at 300' (station 2) - vegetation essentially the same...more scrub shrub than station 1 with canopy about 20'. Red Maple dominant tree species with shrub layer consisting of Buttonbush (Cephalanthus occidentalis), Lyonia sp., and Hydocotyle. Water sample and hydrolab readings taken from a small hole in forest floor.

at 400' - canopy starting to open; less Smilax; Red Maples 25 ft. tall; standing water; duckweed (Lemna) and Green Arum (Peltandra) appearing. Ditch crossed 260' from station 2.

at 600' (station 3) - Red Bay dominant; Sweet Bay (bays with multiple stems) and Red Maples still present... canopy 30-40', understory sparse Alders (Alnus serrulata), shrub layer Itea virginiana ground cover Arrowhead (Sagittaria). Lemna still present. Water sample and hydrolab readings taken. Water depth 6 in.

at 750' to road standing water waist deep (2 1/2 - 3 ft. deep) strong sulfide odor; much downed timber, mostly Red Maple.

at 900' (station 4) - Red maple, Tupelo Gum, downed timber; forest thin; Lemna thick; Water sample and hydrolab readings taken. Water depth 1.5 ft.

at 1200' (station 5) - open water ditch just before light service road, Sagittaria, Lemna, Salix nigra, Cephalanthus occidentalis, beaver activity; water sample and hydrolab readings taken. Water depth 1 ft.

(station 5A-P1) - across light service road in center of open water pond southeast of culverts at end of transect 5. Water sample and hydrolab readings taken at depth of 12".

(station 5A-P2) - same location as P1. Hydrolab reading from depth of 6 ft. (ie. bottom of pond).

Transect 8 (5 stations) - running 112.5 degrees East-Southeast from well numbered LF4-10 as in stations 4 and 5 (see map). The initial station of this transect is 300 feet East-Southeast of the station 1 for transects 3,4,and 5.

at 300'(station 1) - dominated by Tulip Poplar canopy;some trees 60' tall. Iron Wood (= Hornbeam), Sweet Bay, Red Bay, Buttonbush, and Vaccinium sp. (blueberries) in the shrub layer. Ground cover with Cinnamon Fern, Royal Fern, and Chain Fern. Pools of open water with a definite algae bloom. Water sample and hydrolab readings taken at depth of 2".

at 600' (station 2) - Somewhat more open than station 1; mature bottomland hardwoods with Red Maple-Tulip Poplar dominant; understory Sweet Bay, Alnus serrulata, and Ironwood. Water about 1' deep covered with duckweed...some sheet flow. Water sample and hydrolab readings taken at depth of 6".

at 650' a beaverdam extends across flow...the dam runs N to S slowing the West to East sheet flow encountered at station 2.

at 900'(station 3) - Smaller canopy trees than in station 2; flow more channelized below the beaver dam, same tree species dominated although canopy is now about 35'. Small Tupelo, Salix, Red Bay, algae has disappeared. Tupelo becomes more dominant the further along the transect. Canopy height is about 35'. This station is "wetter" than the previous... Water sample and hydrolab readings taken at a depth of 8".

at 1200'(station 4) - Mature Tupelo forest, some Red Maple, Alnus, Itea virginica, and Sweet Bay. Understory with thick vines, mostly Smilax. Water sample and hydrolab readings taken at depth of 8".

at 1500' (station 5) - Hannah Road at culverts. Open water with Lemna, beaver channel. Water sample and hydrolab readings taken at depth of 1'6".

Transect 10 (3 stations) - running 135 degrees South-Southeast of well numbered LF4-10. Stations at 200 foot intervals until West to East drainage intercepted.

100'(station 1) - Description of vegetation for this station same as station 1 transects 3,4, and 5 (ie. mature bottomland hardwood forest). Station just

over edge of berm of dump site in shallow depression in 4" water. Water sample and hydrolab readings taken.

200'(station 2) Mature hardwood bottoms with Red Maple and Tulip Poplar dominant, some trees well over 70'. Many vines, both grape vines and Smilax sp.; very little ground cover, some small Red Bay, black berries; sample taken in shallow depression with about 4" of water.

400'(station 3) Mature bottomland hardwoods with Tupelo and Tulip Poplar dominating. Open forest floor with understory of Smilax, Red Maples, and Red Bay. Sample taken from drainage ditch which runs almost due East from the South edge of the landfill. Water sample and hydrolab readings were made. Depth of readings was 2.5'.

Transect 10A (3 stations) - This was an abbreviated transect which was initiated about 60' South of wells numbered LF4-10,11,12, and 29. Vegetation essentially same as for Transect 10, stations 1 and 2. The transect line runs almost due east and crosses transect 10 between stations 1 and 2

at 0' (station 1A) - In a shallow depression of collected water approx. 30 ft. from edge of dump, 20' from exposed aluminum and an old drum. Water sample and hydrolab readings taken. Water depth 1 in.

at 43' (station 1B) - (close to transect 8) in standing water at base of Tupelo trees; Water sample and hydrolab readings taken. Water depth 2 in.

at 118' (station 1C) - (143' from well numbered WP-6) in shallow standing water; only hydrolab readings taken. Water depth 2 in.

Transect 11 (3 stations) - south across well numbered WP-3; mostly dry, no standing water, water in depressions and in a small stream

at small stream running W => E (station 1) - bottomland hardwood forest dominated by Tulip Poplar 1.2 ft. dbh, Water Oak 0.8 ft. dbh, and Sweet Bay 1.3 ft. dbh; understory Red Bay, Itea virginica, Privet, with a groundcover of Cinnamon Fern, Chain Fern, blackberry, poison ivy, Royal Fern, Virginia Creeper, and Sensitive Fern. Water sample and hydrolab readings taken. Water depth 3 ft.

at 150' (station 2) - Tupelo present though Tulip Poplar still dominant; Water sample and hydrolab readings taken in shallow depression. Water depth 6 in.

(station 3) - 10' due north of chain-link fence at end of transect; vegetation unchanged; Water sample and hydrolab readings taken in shallow depression. Water depth 6 in.

Transect 12 (2 stations) - due south of wells numbered LF4-30,31

mature bottomland hardwood forest dominated by Tulip Poplar; understory Red Maple, willow, and Sweet Gum

at 175' (station 1) - mature forest dominated by Tulip Poplar with some oaks and willow; understory Sweet Bay; Water sample and hydrolab readings taken in 3 in of water; definite W to E flow; heavy film of iron bacteria; oily sheen on surface of water.

at 300' (station 2) - vegetation same; water standing in a shallow depression; Water sample and hydrolab readings taken. Water depth 3 in. Note: end of transect at 399' (at same chain-link fence as in transect 11)

Upwelling Holes (2 stations) - mature bottomland forest as in transect 11; on the south side of the landfill; about 40 ft. from the edge of the landfill and near transect 11 is an area in which water upwells from the forest floor and flows in an easterly direction. Two water samples and two sets of hydrolab readings were taken in the upwelling holes.

Leachate Seeps (4 stations) - A leachate seep flows beside the landfill on the south side between Transects 11 and 12. This sheet flow becomes a channel (ie. leachate stream) just before transect 11. No apparent vegetative impacts were noted although there was a thick film of iron bacteria present in the water. Along the leachate seep, water samples and hydrolab readings were taken at stations LS-1,2,2A, and 3 (see map). LS-2A was taken North of LS-2 on the edge of the landfill.

STP (2 stations) - two stations were sampled at the extreme northwest end of the study area near the sewage treatment plant. Station STP-1 was located in the channel (same channel as in Transects 1,2,2A,3, and 4) just below the discharge of the treatment plant. Station US-STP was on a small tributary approx. 20' ^{upstream} from the confluence of the tributary with the main channel, ^{draining the sewage the STP} Water samples and hydrolab readings were taken at each station.

Warner Robbins Air-Force Base

Table 1

Sample ID	pH	Alk. mg/l	Hard. mg/l	Total NH ₃ -N mg/l	Un-ionized NH ₃ µg/l	Chloride	Microtox®		Temp. °C	Field				
							5 Min. EC ₅₀	15 Min. EC ₅₀		pH	D.O. mg/l	Cond. µS/cm	ORP volts	Depth in.
T1-1	6.89	127	68	5.00	9.72	45.0	1.49	1.29	20	6.7	7.35	519	.462	6
2-1	6.45	135	136	.21	.125	9.80	>100	>100	18	6.2	.76	307	.004	5
2-2	5.47	7	8	<.1	<.012	5.60	>100	>100	20	5.5	5.31	57	.230	5
2-3	6.40	128	62	4.8	15.6	40.00	2.70	1.87	21	6.9	7.93	523	.492	8
2-4	6.82	123	76	2.4	14.5	42.00	66.88	59.25	26	7.0	7.45	497	.178	7
2A-1	6.99	420	368	3.2	7.56	38.00	>100	>100	14	7.0	.53	895	.168	3
2A-2	6.83	364	322	3.1	9.95	48.00	>100	>100	15	7.1	1.55	875	.186	2
2A-3	7.18	100	64	1.8	2.39	42.00	14.67	11.10	19	6.6	6.56	429	.338	24
2A-4	6.91	116	62	1.7	3.72	42.00	>100	>100	21	6.7	6.11	413	.025	9
3-1	4.95	2	4	<.1	<.004	3.30	>100	>100	18	5.1	2.0	36	.259	3
3-2	7.44	643	420	12	20.9	330.00	>100	>100	14	6.8	.47	1438	.140	2
3-3	7.58	282	148	.52	1.66	36.00	>100	>100	15	7.1	1.33	590	.080	3
3-4	6.52	130	98	.13	.242	18.00	>100	>100	16	6.8	.19	214	.037	2
3-5	5.36	4	4	<.1	<.334	5.00	>100	>100	17	7.0	.19	35	.232	2
3-6	7.45	193	190	.17	.411	34.00	>100	>100	17	6.9	4.68	434	.298	3
3-P1	7.16	109	68	.10	.144	35.00	>100	88.62	20	6.6	6.73	433	.064	12
3-P2	7.10	106	62	.72	1.62	32.00	>100	>100	19	6.8	5.67	397	.008	6
3-P3	7.07	110	70	1.8	4.97	32.00	>100	>100	18	6.9	.75	394	.098	6
3A-P1	7.21	109	62	1.1	3.76	33.00	>100	>100	18	7.0	5.51	386	.090	9
4-2	7.09	328	316	.36	.259	100.00	>100	>100	18	6.3	.53	725	.062	1
4-3	6.91	178	170	.46	.496	72.00	>100	>100	19	6.5	.31	435	.073	1
4-4	6.71	92	82	.16	.179	20.00	>100	>100	20	6.4	.36	222	.020	2
4-5	6.45	38	18	<.1	<.060	7.60	>100	>100	21	6.2	.11	104	.075	2
4-6	6.57	90	80	<.1	<.061	7.60	>100	>100	20	6.2	.23	189	.029	2
4-P1	7.10	96	58	.24	.636	29.00	>100	>100	19	6.9	6.71	400	.371	12
4-P2	7.09	104	64	1.4	4.70	30.00	>100	>100	19	7.0	5.14	393	.128	8
4-P3	7.43	67	50	<.1	<.491	17.00	>100	>100	20	7.1	10.96	228	.226	12
4A-P1	7.58	78	48	<.1	<.715	19.00	>100	>100	19	7.3	9.62	254	.075	8
4A-P1A	-	-	-	-	-	-	-	-	19	6.9	5.13	339	.076	24
5-1	5.24	5	6	<.1	<.007	4.10	>100	>100	19	5.3	2.85	38	.404	3
5-2	5.11	5	6	<.1	<.008	4.60	>100	>100	20	5.3	8.4	35	.368	cup
5-3	5.71	10	14	<.1	<.008	6.20	>100	>100	17	5.4	.94	50	.214	6
5-4	6.00	25	22	.11	.025	9.70	>100	>100	16	5.9	.17	161	.044	18
5-5	6.24	56	36	.29	.105	15.0	>100	>100	18	6.0	.29	125	.035	12
5A-P1	7.06	89	54	1.6	2.30	28.00	>100	>100	19	6.6	4.22	338	.154	12
5A-P2	-	-	-	-	-	-	-	-	17.5	6.6	3.5	339	.161	72
8-1	4.74	1	6	<.1	<.006	5.40	85.04	>100	16.4	5.3	1.3	33	.265	2
8-2	6.15	16	14	<.1	<.010	5.00	>100	>100	15.6	5.6	2.4	51	.221	6
8-3	5.70	11	10	<.1	<.037	4.80	>100	>100	16.3	6.1	4.2	45	.267	8
8-4	6.20	25	36	<.1	<.139	6.70	>100	>100	16.0	6.7	.25	82	.186	8
8-5	5.66	9	16	<.1	<.147	5.30	>100	>100	15.2	6.7	.59	53	.298	18
10-1	5.28	5	4	<.1	<.002	4.40	>100	>100	18.1	4.8	1.2	330	.292	4
10-2	5.15	4	6	<.1	<.006	5.20	75.4	>100	17.1	5.3	4.2	37	.358	2
10-3	5.75	14	12	<.1	<.006	4.50	>100	>100	17.3	5.3	3.0	50	.306	30
10-1A	7.10	796	546	25.0	15.1	160.00	>100	>100	17.1	6.3	1.2	1610	.079	1
10-1B	7.61	411	258	<.1	<.180	120.00	>100	>100	16.4	6.8	4.8	860	.068	2
10-1C	-	-	-	-	-	-	-	-	16.5	6.4	1.1	35	.125	2
11-1	6.40	70	68	.64	.670	4.80	>100	>100	16.5	6.5	4.2	183	.154	3
11-2	6.03	27	30	<.1	<.057	3.40	>100	>100	18.6	6.2	1.1	88	.287	6
11-3	5.64	11	15	.15	.045	3.80	>100	>100	15.8	6.0	1.1	67	.200	6
12-1	6.42	81	88	.28	.243	3.20	34.06	44.06	13.1	6.6	.71	297	.076	3 1/2
12-2	4.98	10	3	<.1	<.019	3.50	>100	>100	14.6	5.8	1.0	49	.081	2
US-STP	6.58	116	120	1.1	1.23	7.7	>100	>100	20.5	6.4	2.8	318	.046	2
STP-01	6.96	105	50	1.25	5.06	42.00	3.43	2.00	20.5	-	-	335	.462	2
UW-01	5.64	14	14	<.1	<.008	3.70	>100	>100	17.0	5.4	2.4	54	.347	1 1/2
UW-02	5.28	6	8	<.1	<.006	2.90	>100	>100	17.4	5.3	2.9	39	.390	1 1/2
LS-01	6.34	134	100	3.4	3.18	25.00	>100	>100	17.5	6.5	.64	314	.012	2
LS-02	6.31	129	140	.78	.244	4.00	>100	>100	17.3	6.0	.45	307	.039	4
LS-03	5.66	10	14	<.1	<.012	3.60	>100	>100	15.8	5.6	1.6	53	.140	2
LS-2A	6.26	178	166	1.4	.266	3.40	>100	>100	16.4	5.8	.15	366	.009	3
LS-2B	-	-	-	-	-	-	-	-	16.7	5.9	.34	230	.099	3

* HydroLab only
 ** Conductivity and Dissolved Oxygen Temperature Corrected

MICROTOX SUMMARY DATA

SAMPLE ID NUMBER	5 MINUTE EC50	15 MINUTE EC50
WR-T10-01	>100 *	>100 *
WR-T10-1A	>100 *	>100 *
WR-T10-1B	>100 *	>100 *
WR-T10-03	>100 *	>100 *
WR-T10-02	75.40	>100 *
LS-01	>100 *	>100 *
LS-02	>100 *	>100 *
LS-03	>100 *	>100 *
LS-2A	19.69	17.40
1-1	1.49	1.29
2-3	2.70	1.87
2-1	>100 *	>100 *
2-2	>100 *	>100 *
2-4	66.88	59.25
Upstream	>100 *	>100 *
WR-WPCP-01	3.43	2.00
12-1	52.96	46.50
12-2	>100 *	>100 *
2A-1	>100 *	>100 *
2A-2	>100 *	>100 *
WR-T3-01	>100 *	>100 *
WR-T3-02	>100 *	>100 *
WR-T3-03	>100 *	>100 *
WR-T3-04	>100 *	>100 *
WR-T3-05	>100 *	>100 *
WR-T3-06	>100 *	>100 *
WR-T3-P1	>100 *	88.62
WR-T3-P2	>100 *	>100 *
WR-T3-P3	>100 *	>100 *
WR-T3A+P1	>100 *	>100 *

** EC50 IS NOT SIGNIFICANT

Microtox® Summary Data

Sample ID Number	5 Minute EC ₅₀	15 Minute EC ₅₀
WR-T4-02	>100 *	>100 *
WR-T4-03	>100 *	>100 *
WR-T4-04	>100 *	>100 *
WR-T4-05	>100 *	>100 *
WR-T4-06	>100 *	>100 *
WR-T4-P1	>100 *	>100 *
WR-T4-P2	>100 *	>100 *
WR-T4-P3	>100 *	>100 *
WR-T4A-P1	>100 *	>100 *
WR-TB-1	>100 *	>100 *
WR-T5-2	>100 *	>100 *
WR-T5-3	>100 *	>100 *
WR-T5-4	>100 *	>100 *
WR-T5-5	>100 *	>100 *
WR-T5A-P1	>100 *	>100 *
2A-4	>100 *	>100 *
2A-3	14.67	11.10
WR-T8-01	85.04	>100 *
WR-T8-02	>100 *	>100 *
WR-T8-03	>100 *	>100 *
WR-T8-04	>100 *	>100 *
WR-T8-05	>100 *	>100 *
WR-UW-01	>100 *	>100 *
WR-UW-02	>100 *	>100 *

** EC₅₀ not significant (>100%)

WR-T11-01	>100 *	>100 *
WR-T11-02	>100 *	>100 *
WR-T11-03	>100 *	>100 *

Microtox Test Data

Industry/Study: Rebber's AFB
Location: Macon, GA

Assay Date: 4/3/91
Analyst: Ormandy

Sample: upstream sample
Date Collected: 4/3/91

Sample: 12-2
Date Collected: 4/3/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	84	60
Blank	94	65
0.7031	85	63
1.4063	78	56
2.8125	85	64
5.6250	86	58
11.250	93	72
22.500	73	62
45.000	77	67
90.000	71	63

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	80	52
Blank	94	52
0.7031	76	52
1.4063	73	49
2.8125	81	58
5.6250	74	56
11.250	78	57
22.500	56	45
45.000	50	52
90.000	49	55

Sample: WR-WPCP-01
Date Collected: 4/3/91

Sample: 2A-1
Date Collected: 4/3/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	74	48
Blank	77	56
0.7031	68	38
1.4063	59	31
2.8125	48	24
5.6250	23	12
11.250	0	0
22.500	-2	-2
45.000		
90.000		

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	77	60
Blank	75	54
0.7031	77	57
1.4063	79	58
2.8125	69	53
5.6250	69	58
11.250	68	56
22.500	68	57
45.000	57	47
90.000	44	37

Sample: 12-1
Date Collected: 4/3/91

Sample: 2A-2
Date Collected: 4/3/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	73	49
Blank	73	54
0.7031	70	51
1.4063	74	54
2.8125	69	48
5.6250	68	50
11.250	60	42
22.500	49	37
45.000	42	28
90.000	27	18

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	73	56
Blank	72	55
0.7031	71	56
1.4063	80	57
2.8125	70	56
5.6250	67	56
11.250	71	62
22.500	58	52
45.000	57	50
90.000	57	52

Microtox Test Data

Industry/Study: Robbins AFB
 Location: Macon, GA

Sample: LS-01
 Date Collected: 4/3/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	88	49
Blank	75	45
0.7031	64	36
1.4063	53	30
2.8125	69	46
5.6250	69	41
11.250	72	48
22.500	67	43
45.000	57	42
90.000	54	39

Sample: LS-02
 Date Collected: 4/3/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	83	51
Blank	73	42
0.7031	59	34
1.4063	69	42
2.8125	74	43
5.6250	66	42
11.250	54	35
22.500	61	49
45.000	61	50
90.000	55	48

Sample: LS 03
 Date Collected: 4/3/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	82	56
Blank	78	54
0.7031	72	48
1.4063	75	49
2.8125	72	54
5.6250	72	51
11.250	77	51
22.500	75	51
45.000	69	52
90.000	59	51

Assay Date: 4/3/91 (and 4/4/91 for LS 2A)
 Analyst: Dr. Mando

Sample: LS-2A
 Date Collected: 4/4/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	78	42
Blank	78	44
0.7031	75	51
1.4063	74	47
2.8125	76	51
5.6250	70	50
11.250	25	20
22.500	13	4
45.000	3	4
90.000	+2	-1

Sample: LS 2A (rerun)*
 Date Collected: 4/4/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	75	53
Blank	76	56
0.7031	74	51
1.4063	78	54
2.8125	65	43
5.6250	68	46
11.250	54	39
22.500	35	26
45.000	17	12
90.000	11	6

Sample: _____
 Date Collected: _____

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank		
Blank		
0.7031		
1.4063		
2.8125		
5.6250		
11.250		
22.500		
45.000		
90.000		

Microtox Test Data

Industry/Study: Robbins AFB
 Location: Macen, GA

Assay Date: 4/5/91
 Analyst: JR Mandelary

Sample: WR-T10-01
 Date Collected: 4/5/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	84	43
Blank	82	45
0.7031	81	42
1.4063	72	39
2.8125	77	40
5.6250	70	34
11.250	65	22
22.500	55	25
45.000	46	24
90.000	51	54

Sample: WR T10-1A
 Date Collected: 4/5/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	78	48
Blank	79	55
0.7031	75	53
1.4063	79	59
2.8125	70	52
5.6250	66	47
11.250	62	44
22.500	52	41
45.000	54	45
90.000	52	46

Sample: WR-T10-02
 Date Collected: 4/5/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	82	42
Blank	82	41
0.7031	61	41
1.4063	18	14
2.8125	-1	-2
5.6250	-2	-2
11.250	-2	-2
22.500	-2	-2
45.000	-2	-2
90.000	(47)	(45)

Sample: WR T10-1B
 Date Collected: 4/5/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	80	54
Blank	77	52
0.7031	74	49
1.4063	71	54
2.8125	78	55
5.6250	76	55
11.250	71	50
22.500	71	54
45.000	63	52
90.000	60	51

Sample: WR T10-03
 Date Collected: 4/5/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	81	52
Blank	77	49
0.7031	76	50
1.4063	72	51
2.8125	74	54
5.6250	74	52
11.250	72	51
22.500	64	51
45.000	53	50
90.000	49	51

Sample: WR T10-02 (Re-run)*
 Date Collected: 4/5/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	81	52
Blank	78	49
0.7031	67	42
1.4063	68	43
2.8125	58	41
5.6250	51	34
11.250	55	34
22.500	51	26
45.000	50	39
90.000	40	29

Microtox Test Data

Industry/Study: Robbins
 Location: Robbins AFB, Macon GA

Assay Date: 4/2/91
 Analyst: Dr Mandsley

Sample: 1A (1-1)
 Date Collected: 4/2/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	80	52
Blank	73	47
0.7031	65	40
1.4063	42	23
2.8125	13	7
5.6250	-2	-2
11.250	-2	
22.500	-2	
45.000	-2	
90.000	-2	

Sample: 2-3
 Date Collected: 4/2/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	78	48
Blank	72	45
0.7031	68	39
1.4063	56	23
2.8125	38	17
5.6250	16	8
11.250	0	0
22.500	-2	-2
45.000		
90.000		

Sample: 2-1
 Date Collected: 4/2/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	75	48
Blank	74	48
0.7031	73	48
1.4063	75	49
2.8125	72	48
5.6250	79	52
11.250	69	49
22.500	67	52
45.000	58	48
90.000	59	53

Sample: 2-4
 Date Collected: 4/2/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	78	47
Blank	75	48
0.7031	73	47
1.4063	70	46
2.8125	63	41
5.6250	63	41
11.250	64	42
22.500	59	40
45.000	45	30
90.000	31	17

Sample: 2-2
 Date Collected: 4/2/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	77	47
Blank	77	49
0.7031	74	44
1.4063	75	50
2.8125	71	49
5.6250	78	48
11.250	69	48
22.500	64	50
45.000	55	48
90.000	52	48

Sample: _____
 Date Collected: _____

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank		
Blank		
0.7031		
1.4063		
2.8125		
5.6250		
11.250		
22.500		
45.000		
90.000		

Microtox Test Data

Industry/Study: Robbins
Location: macon, GA

Assay Date: 4/2/91
Analyst: an mandley

Sample: WR-T11-01
Date Collected: 4/2/91

Sample: _____
Date Collected: _____

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	84	58
Blank	69	46
0.7031	67	45
1.4063	66	46
2.8125	70	52
5.6250	65	43
11.250	62	45
22.500	56	45
45.000	(106)*	()
90.000	41	28

* hit it twice w/ reagent.

Sample: WR-T11-02
Date Collected: 4/2/91

Sample: _____
Date Collected: _____

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	79	49
Blank	85	54
0.7031	80	52
1.4063	79	49
2.8125	84	53
5.6250	83	57
11.250	85	61
22.500	71	57
45.000	63	54
90.000	57	51

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank		
Blank		
0.7031		
1.4063		
2.8125		
5.6250		
11.250		
22.500		
45.000		
90.000		

Sample: WR-T11-03
Date Collected: 4/2/91

Sample: _____
Date Collected: _____

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	80	52
Blank	82	56
0.7031	80	52
1.4063	80	56
2.8125	75	49
5.6250	72	48
11.250	69	46
22.500	72	57
45.000	65	58
90.000	54	58

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank		
Blank		
0.7031		
1.4063		
2.8125		
5.6250		
11.250		
22.500		
45.000		
90.000		

Microtox Test Data

Industry/Study: Reb bins AFB
Location: Macon, GA

Sample: WR-T8-04
Date Collected: 4/3/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	75	48
Blank	76	48
0.7031	72	47
1.4063	76	51
2.8125	72	47
5.6250	73	49
11.250	63	46
22.500	61	43
45.000	59	42
90.000	47	40

Sample: WR-T8-05
Date Collected: 4/3/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	78	56
Blank	76	53
0.7031	70	48
1.4063	65	45
2.8125	68	47
5.6250	67	48
11.250	72	49
22.500	66	50
45.000	61	50
90.000	50	46

Sample: _____
Date Collected: _____

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank		
Blank		
0.7031		
1.4063		
2.8125		
5.6250		
11.250		
22.500		
45.000		
90.000		

Assay Date: 4/3/91
Analyst: Jr Mandley

Sample: WR-UW-01
Date Collected: 4/3/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	75	52
Blank	73	52
0.7031	64	44
1.4063	74	50
2.8125	75	55
5.6250	74	53
11.250	68	49
22.500	62	50
45.000	61	51
90.000	58	53

Sample: WR-UW-02
Date Collected: 4/3/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	80	49
Blank	80	51
0.7031	72	46
1.4063	63	40
2.8125	61	38
5.6250	79	52
11.250	76	50
22.500	78	54
45.000	66	49
90.000	66	53

Sample: _____
Date Collected: _____

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank		
Blank		
0.7031		
1.4063		
2.8125		
5.6250		
11.250		
22.500		
45.000		
90.000		

Microtox Test Data

Industry/Study: Robbins AFB
 Location: Macen GA

Assay Date: 4/3/91
 Analyst: Shirley D. Long

Sample: 2A-3
 Date Collected: 4/3/91

Sample: WR-T8-01
 Date Collected: 4/3/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	0	
Blank	73	
0.7031	81	
1.4063	65	
2.8125	71	
5.6250	58	
11.250	88	
22.500	19	
45.000	0	
90.000	-2	

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	82	51
Blank	80	51
0.7031	76	50
1.4063	67	44
2.8125	69	49
5.6250	69	47
11.250	64	47
22.500	63	51
45.000	53	47
90.000	35	37

Sample: 2A-4
 Date Collected: 4/3/91

Sample: WR-T8-02
 Date Collected: 4/3/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	78	54
Blank	74	55
0.7031	76	53
1.4063	71	50
2.8125	78	59
5.6250	107	87
11.250	97	87
22.500	96	90
45.000	79	77
90.000	89	86

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	20	42
Blank	61	30
0.7031	60	31
1.4063	59	32
2.8125	62	33
5.6250	57	29
11.250	47	27
22.500	46	25
45.000	51	33
90.000	49	39

Sample: 2A-3 (Beran) *
 Date Collected: 4/3/91

Sample: WR-T8-3
 Date Collected: 4/3/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	82	47
Blank	90	57
0.7031	85	49
1.4063	88	52
2.8125	81	47
5.6250	78	42
11.250	56	31
22.500	24	9
45.000	1	-2
90.000	-2	

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	74	48
Blank	75	47
0.7031	75	47
1.4063	76	47
2.8125	77	49
5.6250	72	43
11.250	67	38
22.500	63	39
45.000	68	46
90.000	85	52

Microtox Test Data

Industry/Study: Robbins AFB
 Location: Macon, GA

Assay Date: 4/4/91
 Analyst: J. R. Mandokey

Sample: WR - TSA - P1 (turtle pond across road)
 Date Collected: _____

Sample: _____
 Date Collected: _____

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	78	54
Blank	76	49
0.7031	75	48
1.4063	67	43
2.8125	76	52
5.6250	76	50
11.250	78	56
22.500	78	57
45.000	80	64
90.000	80	72

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank		
Blank		
0.7031		
1.4063		
2.8125		
5.6250		
11.250		
22.500		
45.000		
90.000		

Sample: _____
 Date Collected: _____

Sample: _____
 Date Collected: _____

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank		
Blank		
0.7031		
1.4063		
2.8125		
5.6250		
11.250		
22.500		
45.000		
90.000		

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank		
Blank		
0.7031		
1.4063		
2.8125		
5.6250		
11.250		
22.500		
45.000		
90.000		

Sample: _____
 Date Collected: _____

Sample: _____
 Date Collected: _____

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank		
Blank		
0.7031		
1.4063		
2.8125		
5.6250		
11.250		
22.500		
45.000		
90.000		

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank		
Blank		
0.7031		
1.4063		
2.8125		
5.6250		
11.250		
22.500		
45.000		
90.000		

Microtox Test Data

Industry/Study: Robbins AFB
Location: Macom, GA

Assay Date: 4/2/91
Analyst: sm mandersley

Sample: WR T5 - 1
Date Collected: 4/2/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	88	74
Blank	94	79
0.7031	91	61
1.4063	88	49
2.8125	83	48
5.6250	86	48
11.250	77	42
22.500	78	37
45.000	87	43
90.000	76	44

Sample: WR T5 - 4
Date Collected: 4/2/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	80	45
Blank	73	41
0.7031	80	46
1.4063	73	46
2.8125	81	46
5.6250	74	43
11.250	75	45
22.500	86	57
45.000	85	58
90.000	62	52

Sample: WR T5 - 2
Date Collected: 4/2/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	66	44
Blank	63	42
0.7031	58	38
1.4063	54	32
2.8125	51	32
5.6250	52	32
11.250	57	46
22.500	57	50
45.000	52	51
90.000	49	54

Sample: WR T5 - 5
Date Collected: 4/2/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	81	46
Blank	76	44
0.7031	78	47
1.4063	80	52
2.8125	78	51
5.6250	76	50
11.250	77	53
22.500	74	53
45.000	65	47
90.000	52	74

Sample: WR T5 - 3
Date Collected: 4/2/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	57	43
Blank	0	0
0.7031	56	42
1.4063	53	39
2.8125	53	40
5.6250	53	42
11.250	52	42
22.500	54	48
45.000	50	45
90.000	47	48

Sample: WR T5 - 3 (Re-run) *
Date Collected: 4/2/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	68	30
Blank	70	30
0.7031	72	32
1.4063	75	38
2.8125	75	37
5.6250	68	39
11.250	62	33
22.500	57	31
45.000	46	27
90.000	(27) =	0

Microtox Test Data

Industry/Study: Robbins AFB
Location: Macom, GA

Assay Date: 4/4/91
Analyst: Jrmandsley

Sample: WR - T4 - P1
Date Collected: 4/4/91

Sample: WR - T4A - P1 (turtle pond)
by spillway
Date Collected: 4/4/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	83	57
Blank	78	54
0.7031	69	49
1.4063	74	52
2.8125	74	52
5.6250	74	52
11.250	78	55
22.500	72	47
45.000	67	48
90.000	56	36

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	84	60
Blank	84	58
0.7031	83	58
1.4063	77	56
2.8125	78	58
5.6250	72	49
11.250	72	51
22.500	68	50
45.000	65	50
90.000	57	51

Sample: WR - T4 - P2
Date Collected: 4/4/91

Sample: WR - T4
Date Collected: 4/4/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	80	60
Blank	75	51
0.7031	76	53
1.4063	72	53
2.8125	74	54
5.6250	78	58
11.250	77	58
22.500	76	59
45.000	71	59
90.000	76	62

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	6	
Blank		
0.7031		
1.4063		
2.8125		
5.6250		
11.250		
22.500		
45.000		
90.000		

Sample: WR - T4 - P3 (turtle pond
across the road)
Date Collected: 4/4/91

Sample: WR - T4
Date Collected: 4/4/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	77	46
Blank	67	38
0.7031	78	42
1.4063	71	38
2.8125	75	48
5.6250	79	49
11.250	79	52
22.500	76	51
45.000	67	48
90.000	65	54

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank		
Blank		
0.7031		
1.4063		
2.8125		
5.6250		
11.250		
22.500		
45.000		
90.000		

Microtox Test Data

Industry/Study: Robbins AFB
 Location: maxon GA

Assay Date: 4/4/91
 Analyst: an mandley

Sample: WR-T4-02
 Date Collected: 4/4/91

Sample: WR T4-05
 Date Collected: 4/4/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	79	41
Blank	78	39
0.7031	67	31
1.4063	72	35
2.8125	74	33
5.6250	65	26
11.250	73	33
22.500	64	24
45.000	62	40
90.000	64	48

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	72	53
Blank	79	61
0.7031	86	57
1.4063	86	61
2.8125	81	62
5.6250	82	62
11.250	82	60
22.500	79	62
45.000	73	60
90.000	70	56

Sample: WR T4-03
 Date Collected: 4/4/91

Sample: WR T4-06
 Date Collected: 4/4/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	75	33
Blank	83	38
0.7031	71	27
1.4063	77	35
2.8125	76	40
5.6250	72	34
11.250	(5) double shot of reagent	43
22.500	66	43
45.000	60	46
90.000	59	51

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	84	55
Blank	94	67
0.7031	77	53
1.4063	84	62
2.8125	88	65
5.6250	78	55
11.250	81	59
22.500	78	56
45.000	72	53
90.000	68	54

Sample: WR T4-04
 Date Collected: 4/4/91

Sample: _____
 Date Collected: _____

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	77	52
Blank	85	58
0.7031	78	49
1.4063	73	53
2.8125	78	53
5.6250	81	56
11.250	82	60
22.500	81	57
45.000	71	53
90.000	69	56

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank		
Blank		
0.7031		
1.4063		
2.8125		
5.6250		
11.250		
22.500		
45.000		
90.000		

Microtox Test Data

Industry/Study: Robbins AFB

Location: Macon GA

Sample: WR - T3 - P1 (at end of channel that has across T2A)

Date Collected: 4/4/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	82	38
Blank	77	36
0.7031	78	36
1.4063	75	34
2.8125	74	32
5.6250	78	33
11.250	77	34
22.500	74	32
45.000	61	23
90.000	48	18

Assay Date: 4/4/91

Analyst: JRmaudley

Sample: WR - T3A - P1 (middle of pond)

Date Collected: 4/4/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	82	53
Blank	73	49
0.7031	72	47
1.4063	75	50
2.8125	74	54
5.6250	76	58
11.250	85	59
22.500	80	59
45.000	81	64
90.000	83	63

Sample: WR - T3 - P2

Date Collected: 4/4/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	75	32
Blank	78	33
0.7031	75	32
1.4063	78	36
2.8125	84	40
5.6250	80	37
11.250	75	34
22.500	67	35
45.000	84	45
90.000	83	54

Sample: _____

Date Collected: _____

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank		
Blank		
0.7031		
1.4063		
2.8125		
5.6250		
11.250		
22.500		
45.000		
90.000		

Sample: WR T3 - P3

Date Collected: 4/4/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	81	50
Blank	83	55
0.7031	84	57
1.4063	80	56
2.8125	84	57
5.6250	84	100
11.250	85	63
22.500	86	63
45.000	88	68
90.000	88	66

Sample: _____

Date Collected: _____

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank		
Blank		
0.7031		
1.4063		
2.8125		
5.6250		
11.250		
22.500		
45.000		
90.000		

Microtox Test Data

Industry/Study: Robbins AFB
 Location: macon, GA

Assay Date: 4/4/91
 Analyst: an mandley

Sample: WR-T3-01
 Date Collected: 4/4/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	82	43
Blank	86	48
0.7031	83	41
1.4063	82	41
2.8125	85	46
5.6250	80	39
11.250	79	38
22.500	69	54
45.000	53	48
90.000	48	47

Sample: WR-T3-04
 Date Collected: 4/4/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	76	47
Blank	75	50
0.7031	75	50
1.4063	76	48
2.8125	77	51
5.6250	76	48
11.250	66	47
22.500	63	47
45.000	57	42
90.000	50	40

Sample: WR-T3-02
 Date Collected: 4/4/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	77	47
Blank	76	42
0.7031	72	45
1.4063	70	45
2.8125	75	47
5.6250	74	48
11.250	77	49
22.500	75	50
45.000	68	48
90.000	64	47

Sample: WR-T3-05
 Date Collected: 4/4/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	84	53
Blank	85	51
0.7031	78	49
1.4063	88	63
2.8125	88	60
5.6250	82	53
11.250	80	53
22.500	76	54
45.000	70	50
90.000	62	55

Sample: WR-T3-03
 Date Collected: 4/4/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	77	50
Blank	78	49
0.7031	83	53
1.4063	80	51
2.8125	83	54
5.6250	85	55
11.250	84	55
22.500	86	60
45.000	81	60
90.000	89	64

Sample: WR-T3-06
 Date Collected: 4/4/91

Concentration (%)	5 Minute Reading	15 Minute Reading
Blank	78	52
Blank	79	55
0.7031	75	47
1.4063	72	52
2.8125	76	53
5.6250	81	51
11.250	79	56
22.500	83	59
45.000	79	58
90.000	73	59